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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
087825,400	03/28/97	MURATA	040679/6439

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FOLEY & LARDNER
3000 K STREET NW SUITE 500
PO BOX 25696
WASHINGTON DC 20007-8696

EXAMINER
SODERQUIST, K

ART UNIT	PAPER NUMBER
2831	

DATE MAILED: 07/30/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/825,400

Applicant(s)

Murata et al.

Examiner

Kristina Soderquist

Group Art Unit

2831



☒ Responsive to communication(s) filed on Amdt dated 6-4-98

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-4 and 12 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-4 and 12 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☒ The proposed drawing correction, filed on Jun 4, 1998 is ☒ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Drawings

The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on June 4, 1998, have been approved.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

-- Claims 1 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Degani et al. (U.S. 5,564,617).

Degani et al. discloses a substrate (reference number 32) having a joining surface (top surface of substrate); and a plurality of solder bumps disposed on the joining surface of the substrate in such a manner as to form a predetermined profiled line or surface pattern; wherein the solder bumps have tops which are free/unconnected, flat and leveled. (see Fig.s 3 and 5) Degani et al. further discloses the width/diameter of the tops of the bumps to be substantially equal to that of the pads and the height of the solder bumps to be smaller than the diameter of the pads.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Degani et al. as applied to claim 1 above.

Degani et al. discloses the claimed invention except for the shape of the pads; however, various shaped, including circular, pads are known in the art of circuit board connections. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose any known shape, including circular, as the shape of the pad, as it has been held that a mere change in shape involves only routine skill in the art. *In re Dailey*, 149 USPQ (CCPA 1976)

As to claim 3, the above modified Degani et al. structure discloses the claimed invention except for the limitation the tops of the solder bumps are smaller in diameter than the pads. Solder bumps of various shapes, including ones wherein the top surface is smaller in diameter than the pad to which it is joined, are known in the art of circuit board connections. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose any known solder bump, including one having a top surface which has a diameter smaller than that of the pad to which it is joined, as it has been held that a mere change in shape involves only routine skill in the art. *In re Dailey*, 149 USPQ (CCPA 1976)

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Response to Arguments

Applicant's arguments with respect to claims 1-4 and 12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristina Soderquist whose telephone number is (703) 305-6318.

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Examiner Soderquist's supervisor, Mrs. Kristine Kincaid, can be reached at (703) 308-0640.



Bot Ledynh
Primary Examiner

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July 29, 1998